

**PRODUCT SUMMARY**

# SKY87021-11: Power Management IC for the SkyBlue™ System

**Applications**

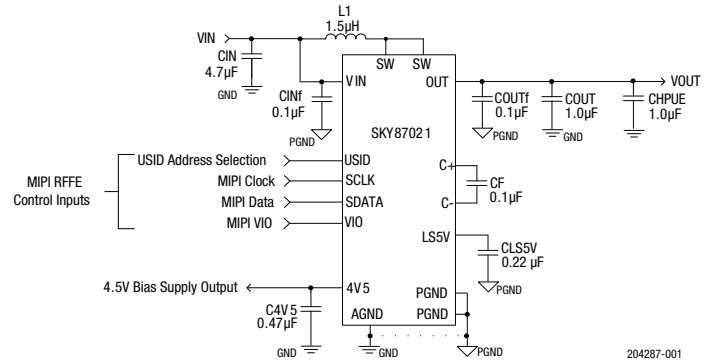
- Smartphones
- 3G/4G multimode front-end modules
- Tablets and eBook readers
- Wireless data cards

**Features**

- Input voltage range: 2.5 V to 5.5 V
- High voltage boost supply:
  - Output voltage range from Bypass to 11V
  - Output current up to 450mA
  - High efficiency: 90% typical ( $V_{IN}=3.8\text{ V}$ ,  $V_{OUT}=9.5\text{ V}$ ,  $I_{LOAD}>110\text{ mA}$ )
  - Fast voltage transition response 570 mV/ $\mu\text{s}$
  - Optimized for small external components
    - For HPUE application, 1.5  $\mu\text{H}$  inductor, 2x1.0  $\mu\text{F}$  output capacitor
    - For non-HPUE application: 1.5  $\mu\text{H}$ /2.2  $\mu\text{H}$ , 1.0  $\mu\text{F}$  output capacitor
    - High 2.25 MHz switching frequency
  - Shutdown load disconnect
  - Fast load transient response, less than 20  $\mu\text{s}$
  - Over temperature, over voltage and short circuit protection
- Low voltage  $\pm 2$  step-down function
  - Output current up to 30 mA
- 4.5 V, 3 mA PA bias supply output
- MIPI RFFE interface for setup and control
  - 8-bit output voltage programming resolution
- Small footprint CSP (16-ball, 1.991 mm  $\times$  1.991 mm) package (MSL1, 260 °C per JEDEC J-STD-020)



Skyworks Green™ products are compliant with all applicable legislation and are halogen-free. For additional information, refer to *Skyworks Definition of Green™*, document number SQ04-0074.



**Figure 1. Typical Application Circuit (Programmable Output)**

**Description**

The SKY87021-11 is a high-efficiency RF front-end power management IC for APT RF power amplifier (PA) applications in portable battery powered devices. This IC includes a high-efficiency DC-DC voltage converter capable of delivering 450 mA at 11 V with a 4.5 V reference supply to provide a user-programmable RF PA APT supply for a 2.5 V to 5.5 V input range.

The SKY87021-11 also provides an additional 4.5 V bias supply for RF PA operation. This bias voltage output can supply load currents up to 3 mA and is available whenever the device is enabled. When the device is disabled, the 4.5 V bias supply is shut down. This device has over-voltage, over-current, shorted circuit, and thermal shutdown protection to protect the device and system under adverse operating conditions.

The SKY87021-11 is capable of supporting HPUE front-end modules and is controlled with a MIPI RFFE 2.0 compliant interface with 8-bit output voltage programming resolution.

The SKY87021-11 is available in a 16-pin, 1.991 mm x 1.991 mm Chip Scale Package (CSP).

A typical application circuit is shown in Figure 1.

## Ordering Information

| Model Name   | Manufacturing Part Number | Evaluation Board Part Number |
|--|---------------------------|------------------------------|
| SKY87021-11: Power Management IC for the SkyBlue™ System | SKY87021-11-001           | SKY87021-11-EVB              |

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